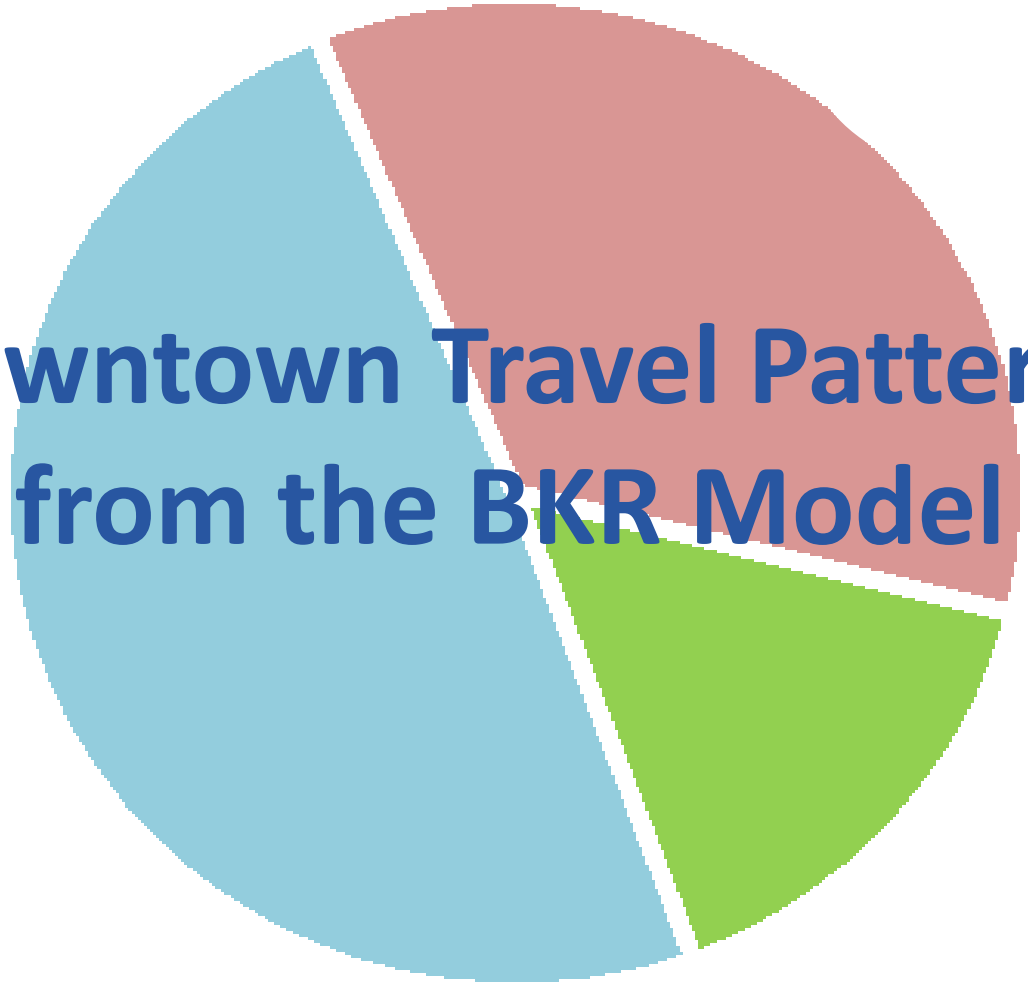
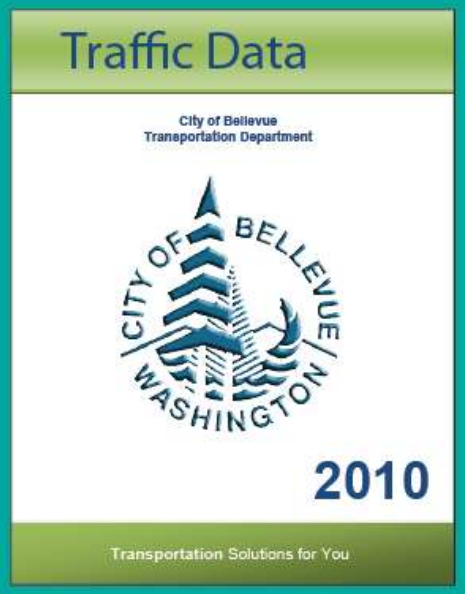
# DOWNTOWN TRAVEL DEMAND MODELING

## TRANSPORTATION COMMISSION
## MAY 10, 2012

# Downtown Travel Patterns from the BKR Model



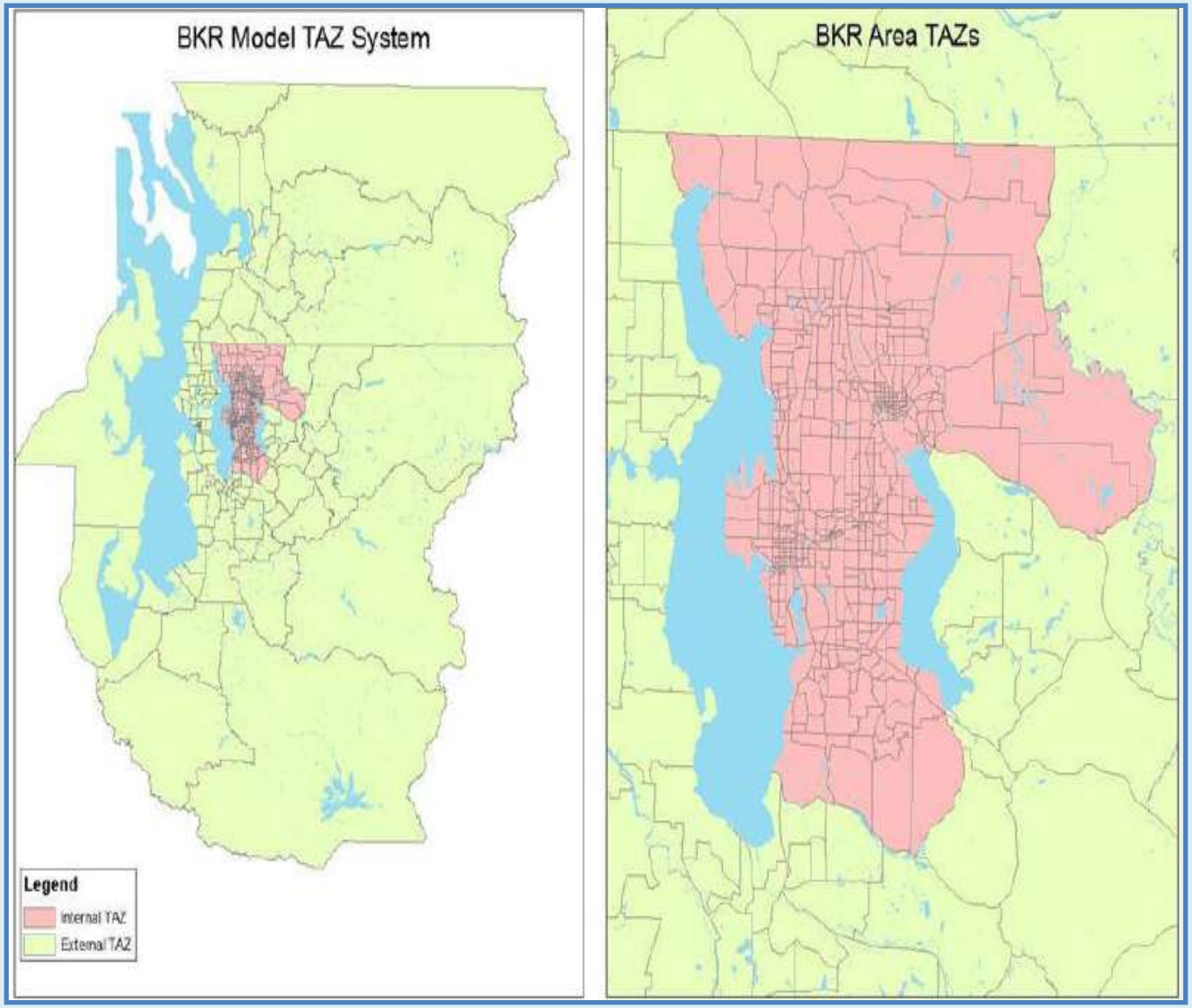
# BKR Travel Demand Forecast



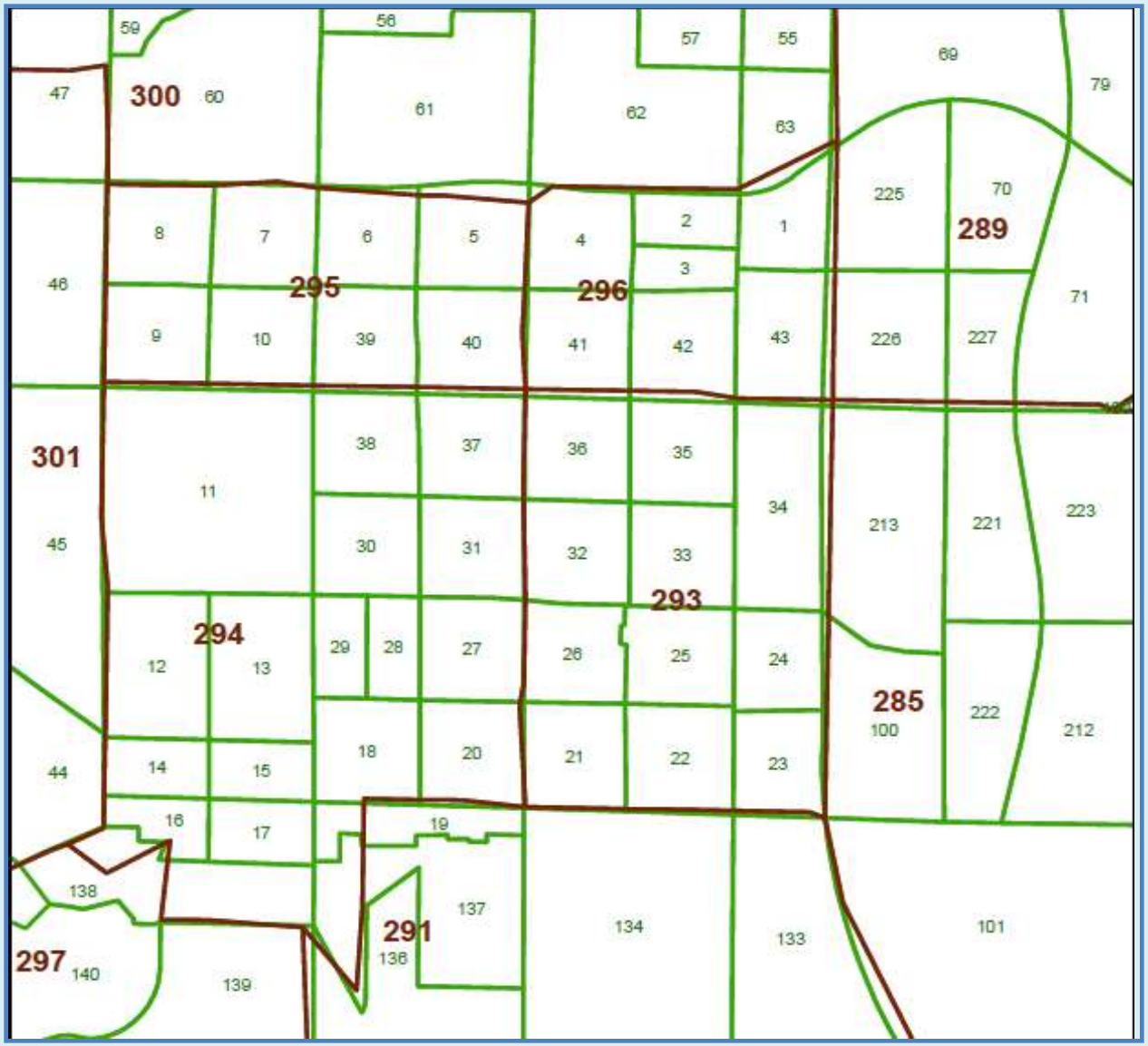

| | | |
|---|---|---|
| Trip Generation | Based on land use forecast (i.e. 2030) | Land Use Forecast for Horizon Year |
| Trip Distribution | Where trips go on the street network | Transportation Network Assumptions |
| Mode Choice | SOV, HOV, Transit, Ped/Bike | |
| Trip Assignment | Trips assigned to specific streets | |

Travel Demand Forecast

# BKR Travel Demand Model
# Traffic Analysis Zones (TAZs)



# BKR Travel Demand Model
# TAZ Structure - Downtown



# Downtown Bellevue Land Use

| | 1990 | 2000 | 2010 | 2030 | 2010/2030 Growth |
|---|---|---|---|---|---|
| **Employment** | 22,257 | 34,042 | 42,525 | 70,300 | +27,775/65% |
| **Population** | 1,182 | 2,588 | 7,147 | 19,000 | +11,853/166% |

# Travel Demand Modeling Definitions

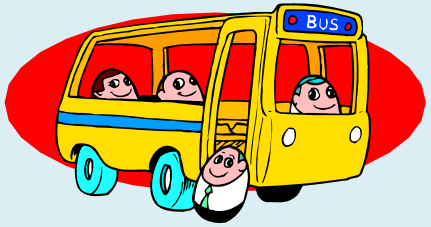
## Person Trip

One trip by a person using any mode any purpose

## TRIP MODE

### Auto Shared

### Transit Riders



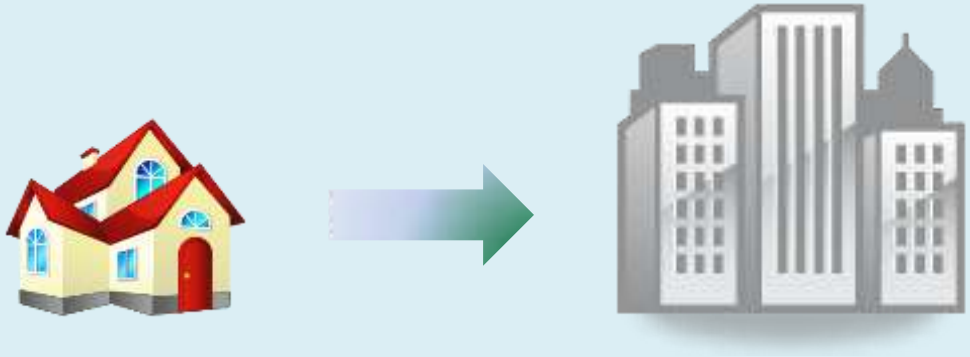

### Auto Alone

### Pedestrians

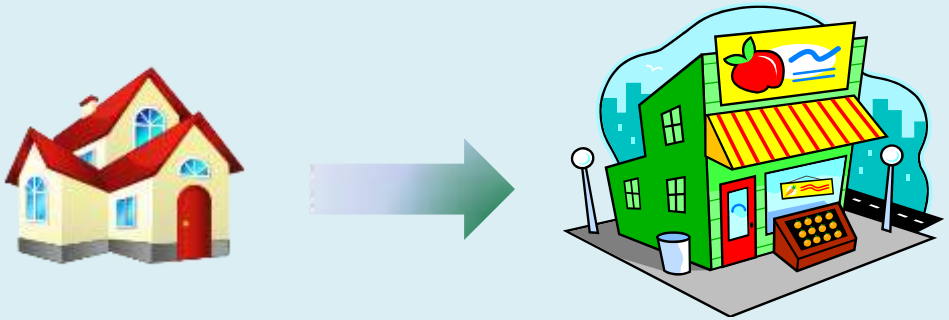
# Travel Demand Modeling Definitions

## TRIP PURPOSE

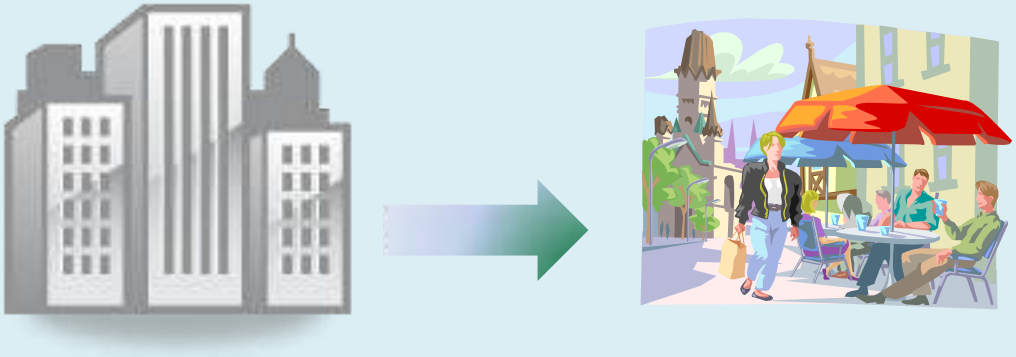
**Home-Based Work:**



**Home-Based Other:**



**Non-Home Based:**



# BKR Travel Demand Model Forecast
# All Trips that Begin or End in Downtown
## By Type

| | 2010 | 2030 | Growth |
|---|---|---|---|
| Home-based work person trips | 57,298 | 106,751 | 49,453/86% |
| Home based other person trips | 185,201 | 340,498 | 155,297/84% |
| Non-home based person trips | 147,645 | 243,298 | 95,653/65% |
| TOTAL | **390,144** | **690,547** | **300,403/77%** |

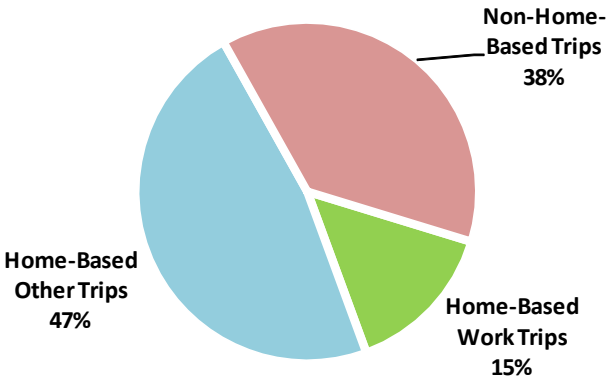
# BKR Travel Demand Model Forecast
# All Trips that Begin or End in Downtown
## By Mode

| | 2010 | 2030 | Growth |
|---|---|---|---|
| Auto | 345,342 | 543,933 | 198,591/58% |
| Pedestrian | 33,590 | 84,571 | 50,981/152% |
| Transit | 11,211 | 62,042 | 50,831/453% |
| TOTAL | **390,144** | **690,547** | **300,403/77%** |

# Total Daily Person Trips
# By Purpose

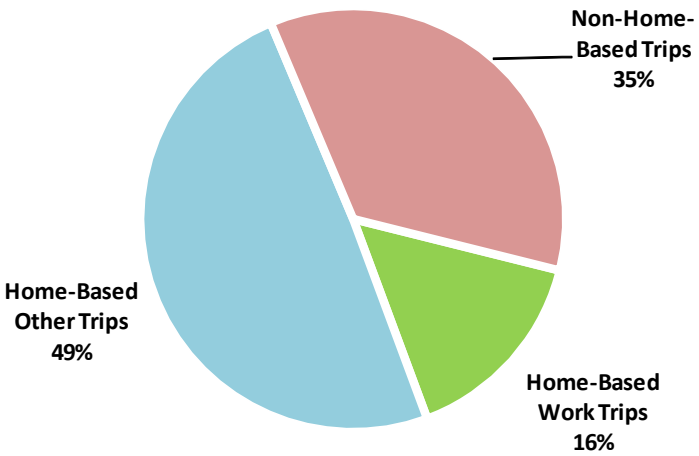
## TRIP MAKING SUMMARY

### Downtown Daily Person Trips: 2010




Total Person Trips: 390,000

### Downtown Daily Person Trips: 2030

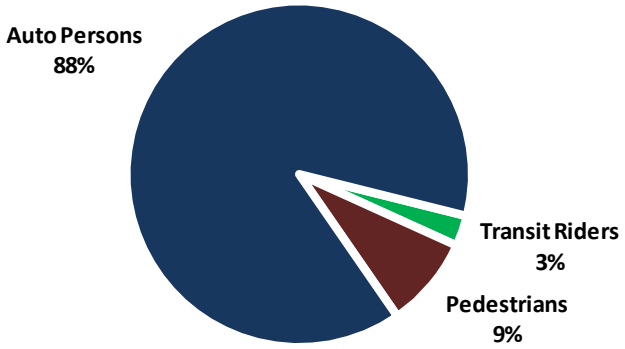



Total Person Trips: 691,000

# Total Daily Trips
# By Mode

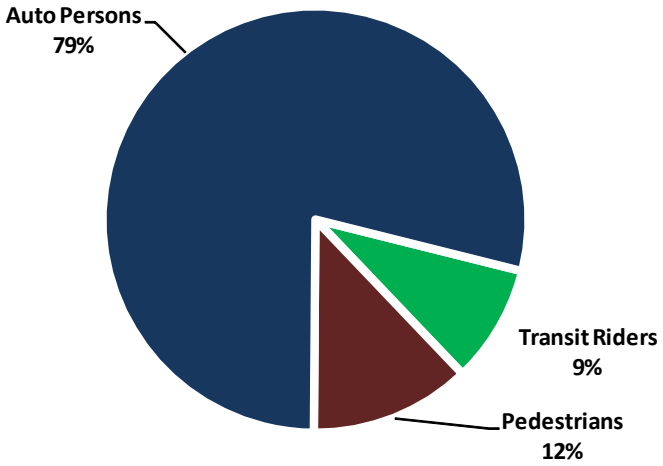
## TRIP MAKING SUMMARY

### Downtown Daily Person Trips: 2010




Total Person Trips: 390,000

### Downtown Daily Person Trips: 2030

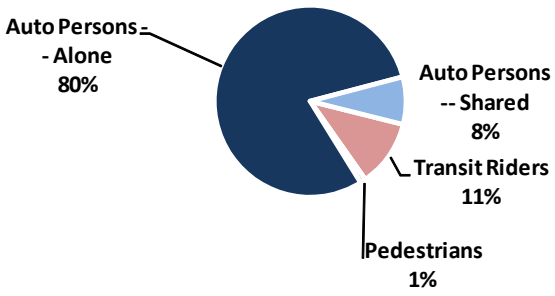



Total Person Trips: 691,000

# Total Home-Based Work Trips by Mode

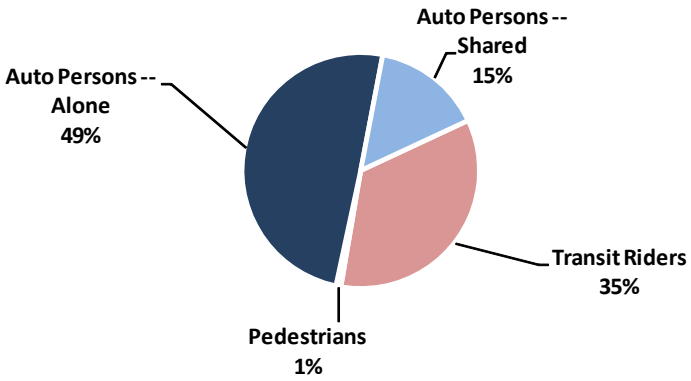
## HOME-BASED WORK TRIP SUMMARY

### Daily Person Work Trips: 2010




Total Trips: 57,000

### Daily Person Work Trips: 2030

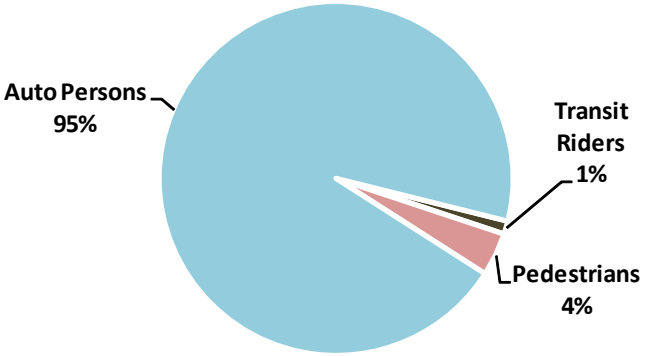



Total Trips: 107,000

# Total Home-Based Other
# Daily Trips by Mode

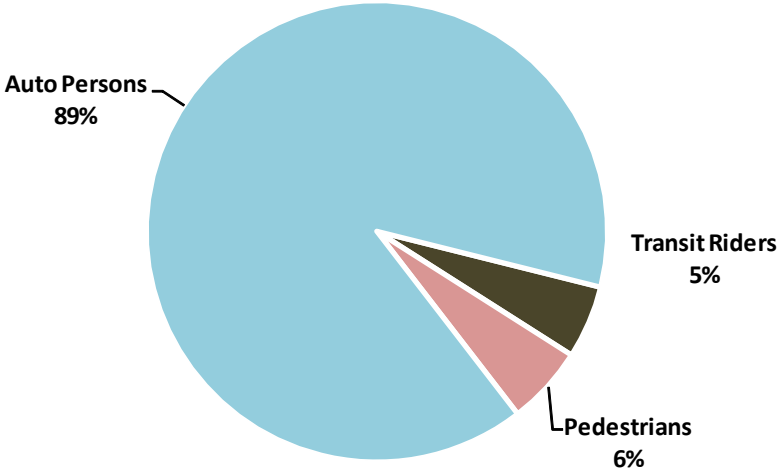
## HOME-BASED OTHER TRIP MAKING

**All Home-Other Daily Person Trips: 2010**




**Total Trips: 205,000**

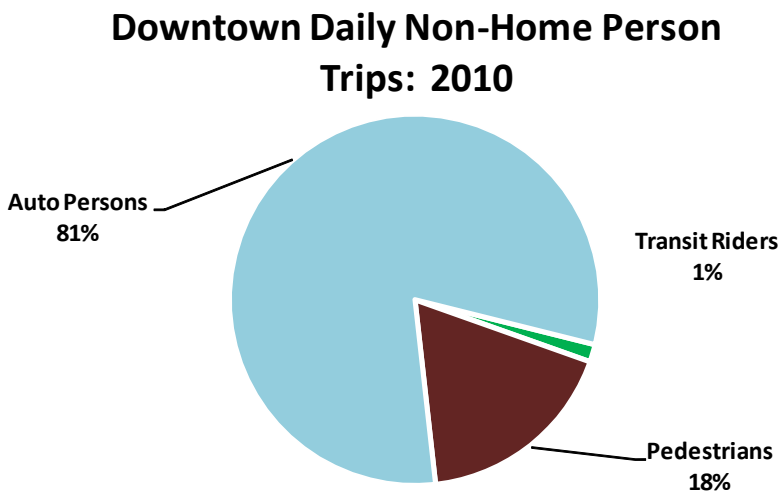
**All Home-Other Daily Person Trips: 2030**



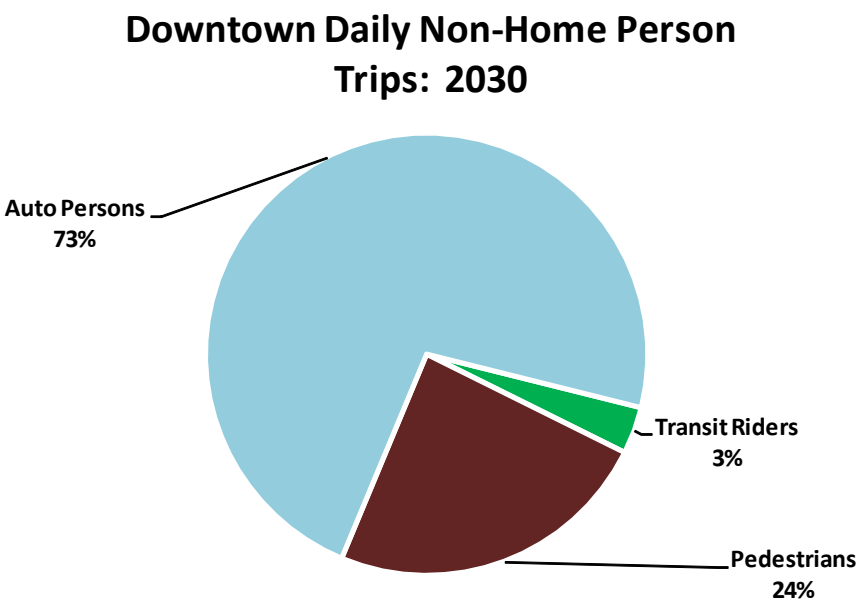

**Total Trips: 383,000**

# Total Non-Home-Based
# Daily Trips by Mode

## NON-HOME-BASED TRIP MAKING




Total Trips: 148,000




Total Trips: 243,000

# Travel Demand Summary Table

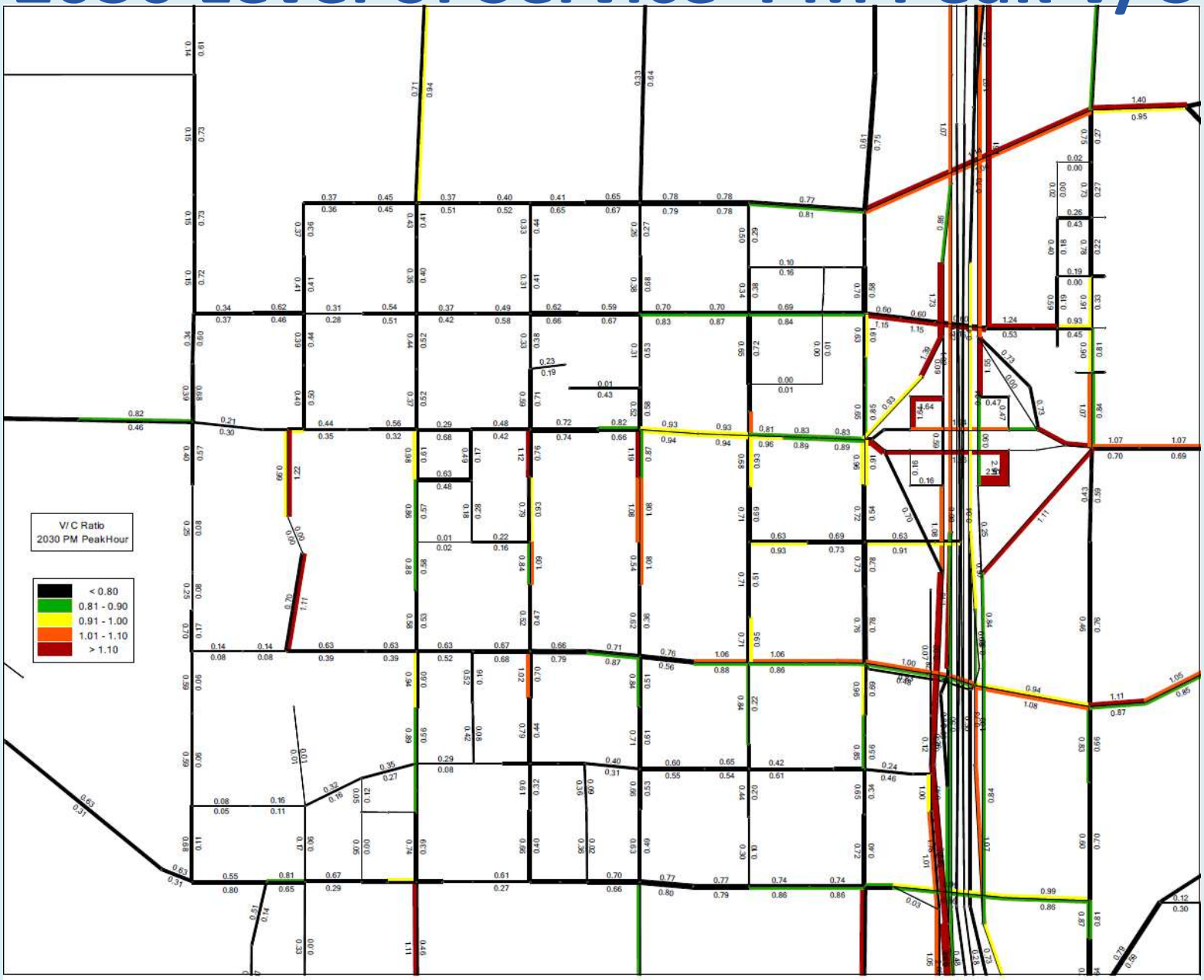
## Downtown Bellevue Trip Patterns Analysis Summary

| All Trips | Total | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2010 | | 2030 | | Change | | |
| Mode | Trips | Percent | Trips | Percent | Absolute | Diff in % | Growth |
| Transit Riders | 11,211 | 3% | 62,042 | 9% | 50,831 | 6% | 453% |
| Pedestrians | 33,590 | 9% | 84,571 | 12% | 50,981 | 4% | 152% |
| Auto Persons | 345,342 | 89% | 543,933 | 79% | 198,591 | -10% | 58% |
| **Total** | **390,144** | | **690,547** | | **300,403** | | **77%** |

| Trips by Purpose | Total | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2010 | | 2030 | | Change | | |
| Mode | Trips | Percent | Trips | Percent | Absolute | Diff in % | Growth |
| ***Home-Based Work Trips*** | | | | | | | |
| Transit Riders | 6,504 | 11% | 36,982 | 35% | 30,478 | 23% | 469% |
| Pedestrians | 533 | 1% | 728 | 1% | 195 | 0% | 37% |
| Auto Persons | 50,261 | 88% | 69,041 | 65% | 18,780 | -23% | 37% |
| **Total** | **57,298** | | **106,751** | | **49,453** | | **86%** |
| ***Home-Based Other Trips*** | | | | | | | |
| Transit Riders | 2,450 | 1% | 16,675 | 5% | 14,226 | 4% | 581% |
| Pedestrians | 6,754 | 4% | 25,578 | 8% | 18,824 | 4% | 279% |
| Auto Persons | 175,998 | 95% | 298,245 | 88% | 122,247 | -7% | 69% |
| **Total** | **185,201** | | **340,498** | | **155,297** | | **84%** |
| ***Non-Home-Based Trips*** | | | | | | | |
| Transit Riders | 2,258 | 2% | 8,385 | 3% | 6,127 | 2% | 271% |
| Pedestrians | 26,303 | 18% | 58,265 | 24% | 31,962 | 6% | 122% |
| Auto Persons | 119,084 | 81% | 176,648 | 73% | 57,564 | -8% | 48% |
| **Total** | **147,645** | | **243,298** | | **95,653** | | **65%** |

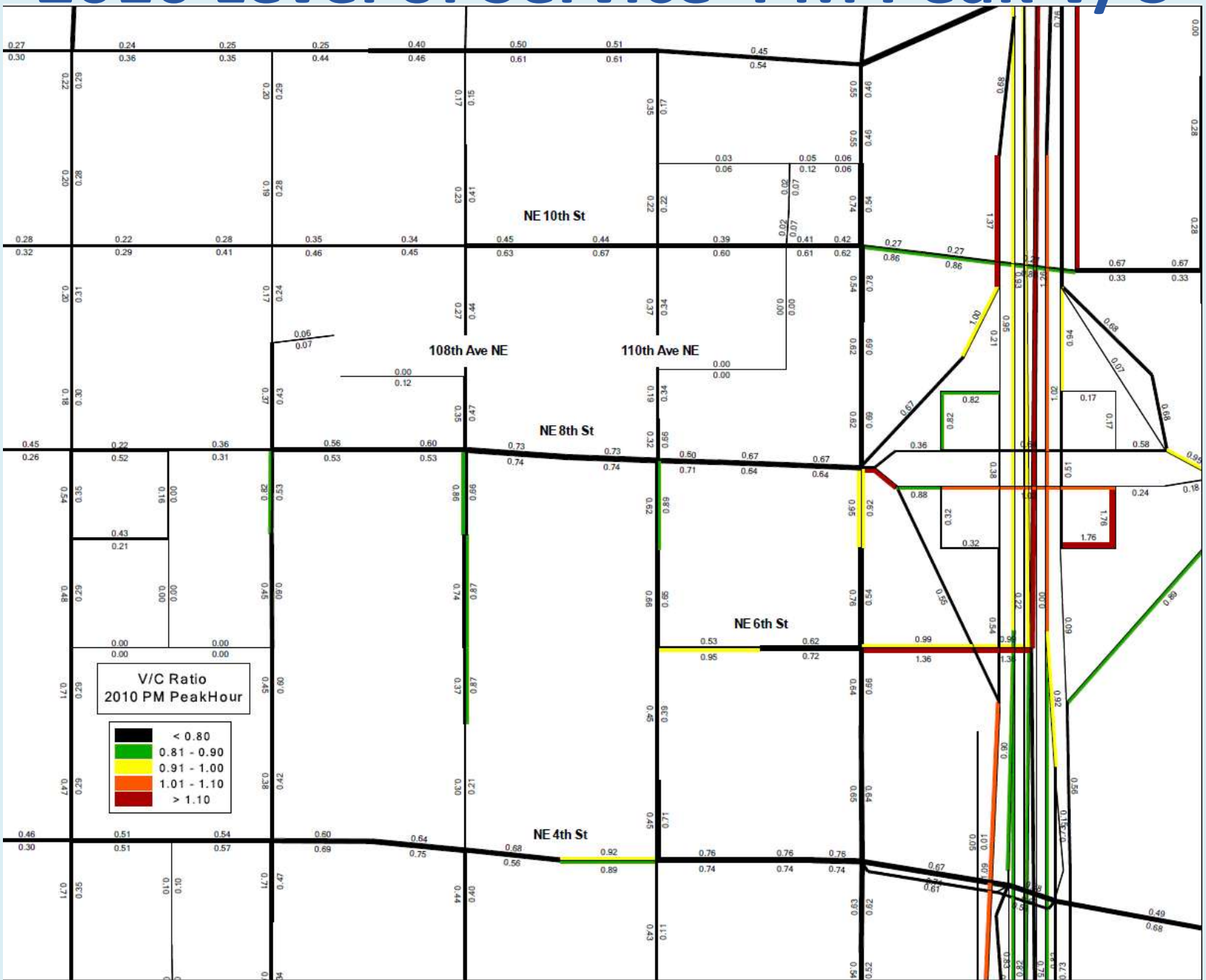
# 2010 Level of Service PM Peak V/C

# 2030 Level of Service PM Peak V/C

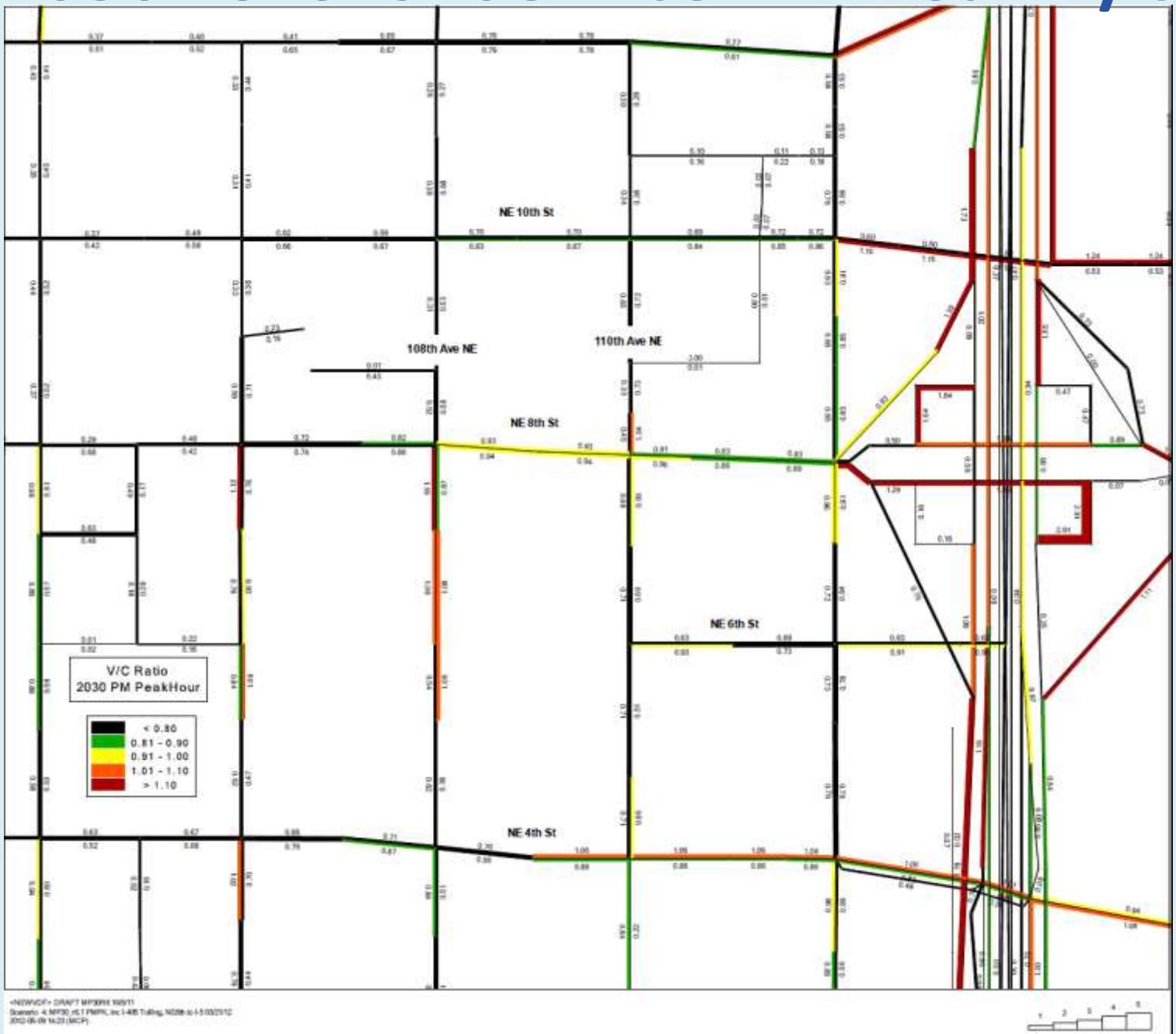



<NEWVDF> DRAFT MP30R6 10/5/11
Scenario 4: MP30_r6.1 PMPK, inc I-405 Tolling, NE8th to I-5 03/21/12
2012-05-09 13:34 (MCP)

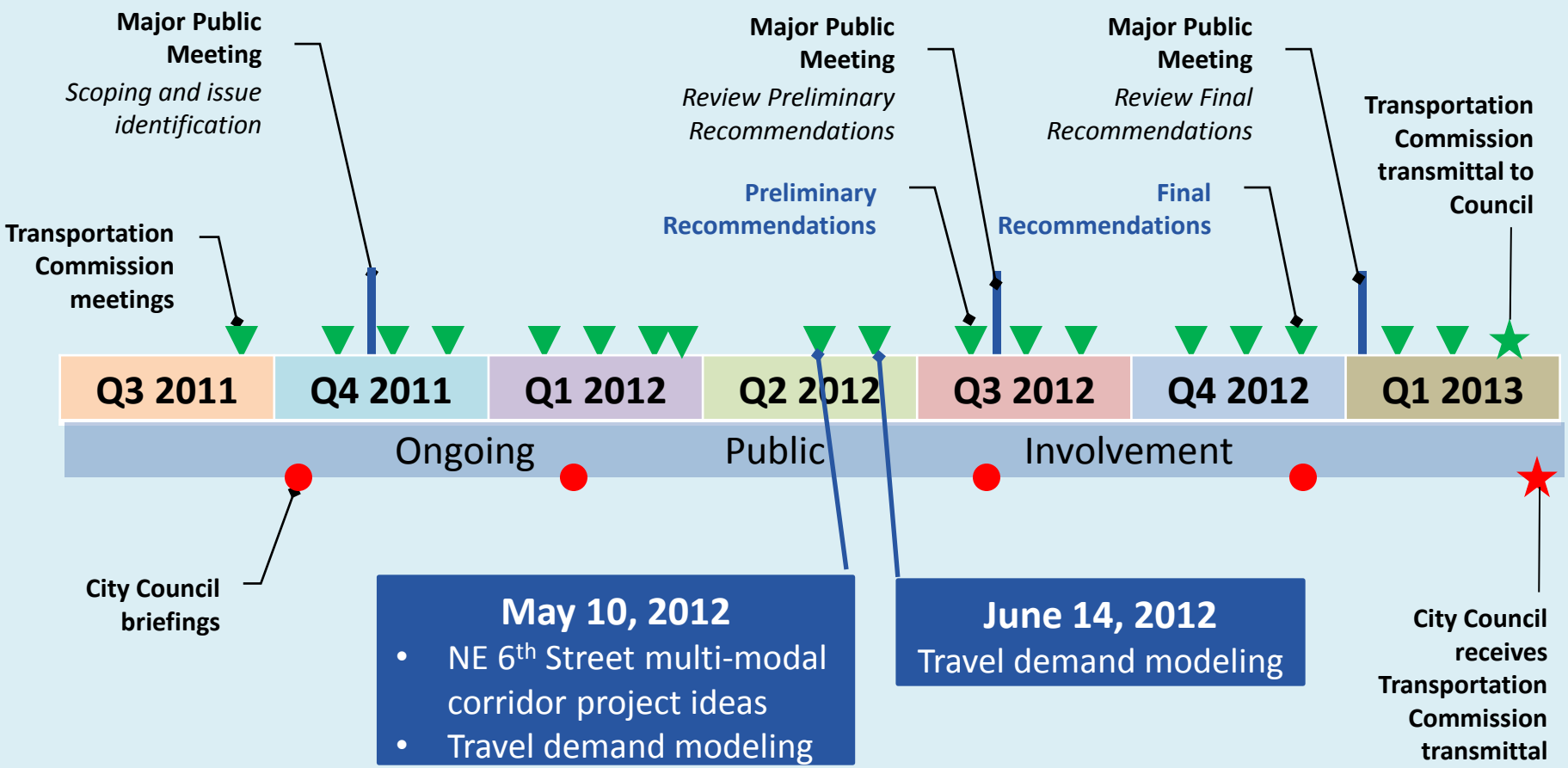
# 2010 Level of Service PM Peak V/C



# 2030 Level of Service PM Peak V/C



# Plan Update Timeline




**Downtown Transportation Plan Update**